

IN THE CLAIMS

The claims are amended as follows:

1. (currently amended) A bearing assembly for supporting a rotating component of a rotary machine comprising:

a bearing housing;

a metallic clearance seal disposed in a fixed radial position with respect to said rotating component and having at least one tooth; said metallic clearance seal attached to said bearing housing is configured to extend radially ~~outward~~ from said bearing housing in a spaced apart relationship with said rotating component to define an envelope ~~having a pre-determined cross-sectional shape~~; and

a non-metallic brush seal assembly fixedly attached to said metallic clearance seal ~~having a second pre-determined cross-sectional shape~~; said non-metallic brush seal assembly adapted to be secured within the envelope of said metallic clearance seal to extend through said envelope and terminate in substantially intimate contact with said rotating component;

wherein said non-metallic brush seal assembly comprises a plurality of fibers to substantially arrest leakage of a lubricant from said bearing housing to said envelope.

2. (original) The bearing assembly in accordance with claim 1, wherein said non-metallic brush seal assembly further comprises at least a pair of bristle holding plates for securing said plurality of fibers.

3. (original) The bearing assembly in accordance with claim 2, wherein said non-metallic brush seal assembly further comprises anti-rotation pins affixed to said metallic clearance seal to prevent circumferential displacement of the non-metallic brush seal assembly relative to the metallic clearance seal.

4. (original) The bearing assembly in accordance with claim 1, wherein said metallic clearance seal comprises a labyrinth seal.

5. (currently amended) The bearing assembly in accordance with claim 1, wherein the envelope has a predetermined cross-sectional shape, and wherein said predetermined ~~first~~ cross-sectional shape comprises at least one of an inverted L-shaped cross section or inverted U-shaped cross-section or F-shaped cross-section or T-shaped cross-section or H-shaped cross-section.

6. (original) The bearing assembly in accordance with claim 1, wherein said non-metallic fibers are selected from the group consisting of polymer fibers, carbon fibers, graphite fibers, ceramic fibers and combinations thereof.

7. (original) The bearing assembly in accordance with claim 1, wherein each of said non-metallic fibers has diameter in the range from about 0.2 mils to about 6 mils.

8. (original) The bearing assembly in accordance with claim 7, wherein each of said non-metallic fibers has diameter in the range from about 0.4 mils to about 1 mil.

9. (original) The bearing assembly in accordance with claim 1, wherein each of said non-metallic fibers has stiffness in the range from about 0.2 psi/mil to about 20 psi/mil.

10. (original) The bearing assembly in accordance with claim 9, wherein each of said non-metallic fibers has stiffness in the range from about 0.4 psi/mil to about 5 psi/mil.

11. (original) The bearing assembly in accordance with claim 1, wherein said plurality of non-metallic fibers have a packing density in the range from about 1000 per square inch to about 300,000 per square inch.

12. (currently amended) The bearing assembly in accordance with claim 11, wherein said plurality of non-metallic fibers have a packing density in the range from about 150,000 per square inch to about 250,000 per square inch.

13. (original) The bearing assembly in accordance with claim 1, wherein each of said non-metallic fibers has a laying angle in the range from about 00 to about 450.

14. (original) The bearing assembly in accordance with claim 13, wherein each of said non-metallic fibers has a laying angle in the range from about 200 to about 400.

15. (original) The bearing assembly in accordance with claim 1, wherein said plurality of non-metallic fibers has an average fence height in the range from about 20 mils to about 100 mils.

16. (original) The bearing assembly in accordance with claim 15, wherein said plurality of non-metallic fibers has an average fence height in the range from about 30 mils to about 60 mils.

17. (original) The bearing assembly in accordance with claim 1, wherein said rotating component has a friction-resistant layer disposed thereon.

18. (original) The bearing assembly in accordance with claim 17, wherein said friction-resistant layer comprises a self-lubricating material.

19. (currently amended) A bearing assembly for supporting a rotating component of a rotary machine comprising:

a bearing housing;

a metallic clearance seal disposed in a fixed radial position with respect to said rotating component and having at least one tooth; said metallic clearance seal attached to said bearing housing is configured to extend radially ~~outward~~ from said bearing housing in a spaced apart relationship with said rotating component to define an envelope having inverted L-shaped cross-section; and

a non-metallic brush seal assembly fixedly attached to said metallic clearance seal having said inverted L-shaped cross-section; said non-metallic brush seal assembly adapted to be secured within said metallic clearance seal to extend through said envelope and terminate in substantially intimate contact with said rotating component having a friction-resistant layer disposed thereon; said friction-resistant layer further comprising a self-lubricating material;

wherein said non-metallic brush seal assembly comprises a plurality of polymer fibers to substantially arrest leakage of a lubricant from said bearing housing to said envelope;

20. (original) The bearing assembly in accordance with claim 19, wherein each of said non-metallic fibers has diameter in the range from about 0.4 mils to about 1 mil.

21. (original) The bearing assembly in accordance with claim 19, wherein each of said non-metallic fibers has stiffness in the range from about 0.4 psi/mil to about 5 psi/mil.

22. – 27. (cancelled)

28. (new) A bearing assembly for supporting a rotating component of a rotary machine comprising:

a bearing housing;

a metallic clearance seal disposed in a fixed radial position with respect to said rotating component and having at least one tooth, said metallic clearance seal attached to said bearing housing and configured to extend radially from said bearing housing in a spaced apart relationship with said rotating component to define an envelope; and

a seal assembly fixedly attached to said metallic clearance seal; said brush seal assembly adapted to be secured within the envelope of said metallic clearance seal and to extend through said envelope and terminate in substantially intimate contact with said rotating component;

wherein said brush seal assembly comprises a plurality of non-metallic brush fibers to substantially arrest leakage of a lubricant from said bearing housing.